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Work by Prof. Oppenheim and his collaborators is summarized here.

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April 17, 1992

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During the period of April 1, 1991, through March 31, 1992, our research activities focussed on continuing work on symbolic signal processing, new algorithms for signal analysis, and new signal representations based on wavelet analysis.

Our work on this contract during the past year has been reported in detail in the technical literature through technical reports, conference proceedings, and journal articles. Copies of these reports have been provided to the contract monitor and other offices as specified in the contract. Additional copies are available on request.

Sincerely yours,

Alan V. Oppenheim
Distinguished Professor
of Electrical Engineering

AVO/dag

Encl.

Publications supported in Whole or in Part by the Defense Advanced Research Projects Agency monitored by the Office of Naval Research under Grant N00014-89-J-1489:

Articles Submitted for Publication or To Be Published

[1] Paul E. Beckmann and Bruce R. Musicus, "Fast Fault-Tolerant Digital Convolution via a Winograd Algorithm", submitted to IEEE Trans. on Signal Processing.

[2] Ehud Weinstein, Meir Feder, and Alan V. Oppenheim, "Multi-Channel Signal Separation Based on Decorrelation", submitted to IEEE Trans. on Signal Processing.

[3] Gregory W. Wornell, "Wavelet-Based Representations for the 1/f Family of Fractal Processing", submitted to Proceedings of the IEEE-Special Section on Applications of Fractals in Electrical Engineering.

[4] Daniel T. Cobra, Alan V. Oppenheim, and Jules J. Jaffe, "Geometric Distortions in Side-Scan Sonar Images: A Procedure for Their Estimation and Correction", submitted to the IEEE Journal of Oceanic Engineering.

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[5] Paul E. Beckmann and Bruce R. Musicus, "Fault-Tolerant Round-Robin A/D Converter System", IEEE Trans. on Circuits and Systems, Vol. 38, No. 12, December 1991, pp. 1420-1429.

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[13] James C. Preisig, "A Robust Adaptive Matched Field Processor Based Upon A Minmax Criterion", Proceedings, ICASSP-91, May 14-17, 1991, Toronto, Ontario, Canada, pp. 1349-1352.

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[16] Gregory W. Wornell, "Communication over Fractal Channels", Proceedings, ICASSP-91, May 14-17, 1991, Toronto, Ontario, Canada, pp. 1945-1948.

[17] Gregory W. Wornell and Alan V. Oppenheim, "Estimation of Fractal Signals from Noisy Measurements Using Wavelets", IEEE Trans. on Signal Processing, Vol. 40, No. 3, March 1992, pp. 611-623.

[18] Gregory W. Wornell and Alan V. Oppenheim, "Wavelet-Based Representations for a Class of Self-Similar Signals with Application to Fractal Modulation", IEEE Trans. on Information Theory - Special Issue on Wavelet Transforms and Multi-Resolution Signal Analysis, Vol. 38, No. 2, March 1992, pp. 785-800.

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Contributed Presentations

[24] Alan V. Oppenheim, plenary speaker, "Chaos, Fractals and Signal Processing", Third Biennial Mini Conference on Acoustics, Speech, and Signal Processing, Henderson House, Northeastern University, Weston, MA, April 19, 1991.

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